CLAIMS

What is claimed is:

1. An intervertebral spacing implant comprising:

a spacing member adapted for implanting between adjacent vertebral bodies of a human spine as a load-bearing replacement for a spinal disc, said spacing member further comprising an external, non-porous, concavo-convex contour with respect to one dimension of said spacing member.

2. The intervertebral spacing implant of claim 1, wherein the spacing member is constructed from a rigid, non-resilient load-bearing material that is incapable of elastic deformation.

3. The intervertebral spacing implant of claim 2, wherein the spacing member comprises metal.

4. The intervertebral spacing implant of claim 3, wherein the spacing member comprises titanium.

5. The intervertebral spacing implant of claim 2, wherein the spacing member comprises ceramic.

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6. The intervertebral spacing implant of claim 1, wherein the spacing member includes an anterior wall and a posterior wall, and wherein the external concavo-convex contour of the spacer is defined by the posterior wall being concave in a horizontal dimension and by the anterior wall being convex in a horizontal dimension.

7. The intervertebral spacing implant of claim 6, wherein the anterior wall and the posterior wall of the spacing member are each linear in a vertical dimension.

8. The intervertebral spacing implant of claim 7, wherein the concavo-convex contour comprises a concave posterior side, and a convex anterior side disposed in a substantial parallel orientation with respect to the concave posterior side.

9. The intervertebral spacing implant of claim 1, wherein the spacing member defines an imaginary arcuate centerline residing between opposing sides of the external concavo-convex contour of said spacing member to thereby enable said spacing member to be inserted thorough an incision along an arcuate insertion path.

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10. The intervertebral spacing implant of claim 9, wherein the spacing member is configured and adapted to be inserted along said arcuate movement path in a manner such that said arcuate movement path coincides with the imaginary arcuate centerline of said spacing member.

11. The intervertebral spacing implant of claim 1, wherein the spacing member further comprises a disc-like member having a thickness, and a length that is greater in length than said thickness, and a width that is greater in width than said thickness.

12. The intervertebral spacing implant of claim 11, wherein the thickness of the spacing member is defined by a perimeter wall that constitutes the concave side and the convex side of the external concavo-convex contour of said spacing member.

13. The intervertebral spacing implant of claim 1, wherein the spacing member further comprises un upper side having a plurality of spaced-apart recesses formed therein.

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14. The intervertebral spacing implant of claim 13, wherein the recesses are elongate and are disposed in a substantial parallel orientation with respect to each other.

15. An intervertebral spacing implant comprising:

a spacing member adapted for implanting between adjacent vertebral bodies of a human spine as a load-bearing replacement for a spinal disc, said spacing member further comprising a non-porous body having a tapered external shape such that said spacing member narrows in thickness in a first direction.

16. The intervertebral spacing implant of claim 15, said spacing member having a discontinuous upper surface.

17. The intervertebral spacing implant of claim 15, wherein the tapered external shape of said spacing member narrows in thickness in a continuous manner along a majority width of said spacing member in an anterior-to-posterior direction.

18. The intervertebral spacing implant of claim 17, wherein the spacing member include an upper surface that forms

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an acute angle with respect to a horizontal plan, said acute angle being in a range of two to six degrees.

19. The intervertebral spacing implant of claim 18, the spacing member having a discontinuous upper surface.

20. The intervertebral spacing implant of claim 19, wherein the upper surface includes a plurality of elongate recesses formed therein, said recesses extending in an anterior-to-posterior direction.

21. The intervertebral spacing implant of claim 18, wherein the spacing member includes a lower surface that forms an acute angle with respect to a horizontal plan, said acute angle being in a range of approximately two degrees to eight degrees.

22. The intervertebral spacing implant of claim 21, wherein the upper and lower surface of the spacing member each form a continuous acute angle of approximately four degrees with respect to a horizontal plane, for a total continuous taper of approximately eight degrees.

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23. The intervertebral spacing implant of claim 15, wherein said spacing member further comprises a convex side, and wherein the tapered external shape of said spacing member is adapted such that said spacing member narrows in thickness in an anterior-to-posterior direction when implanted with said convex side facing an anterior direction.

24. The intervertebral spacing implant of claim 23, wherein the spacing member further comprises an upper surface, and wherein the tapered external shape of the spacing member is such that the upper surface of said spacing member defines a first acute angle with respect to a plane that is orthogonal to the convex side of the spacing member.

25. The intervertebral spacing implant of claim 15, wherein the tapered external shape of said spacing member comprises a taper sufficient in degree to permit a lordosis spinal configuration to be restored when said spacing member is sandwiched between adjacent intervertebral bodies.

26. An intervertebral spacing implant system comprising:

a spacing member adapted for implanting between adjacent intervertebral bodies of a human spine;

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positioning means for enabling a surgeon to adjust a position of the spacing member when said spacing member resides between adjacent intervertebral bodies, said positioning means comprising a sheath member, a rod member slidably insertable into the sheath member, and a means for releasably attaching the rod member to the spacing member.

27. The intervertebral spacing implant system of claim 26, wherein the rod member has a longer length than the sheath member, such that a proximal portion of the rod member protrudes from the sheath member when said rod member resides within said sheath member and is attached to the spacing member.

28. The intervertebral spacing implant system of claim 26, wherein the means for releasably attaching the rod member to the spacing member further comprises a threaded engagement.

29. The intervertebral spacing implant system of claim 28, wherein the means for releasably attaching the rod member to the spacing member further comprises a female threaded recess formed in the spacing member, and wherein the rod member comprises a male threaded distal end having a size and

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configuration sufficient to permit threaded engagement between said male threaded distal end of the rod member and the female threaded recess formed in the spacing member.

30. An intervertebral spacing implant system comprising:

a spacing member adapted for implanting between adjacent intervertebral bodies of a human spine;

positioning means for enabling a surgeon to adjust a position of the spacing member when said spacing member resides between adjacent intervertebral bodies, said positioning means further comprising an attachment means for becoming releasably attached to the spacing member at a first area of attachment, and a stabilizing means for removably contacting the spacing member along a contact line that surrounds the first area of attachment.

31. The intervertebral spacing implant system of claim 30, wherein the stabilizing means further comprises means for contacting the spacing member along a circular contact line that circumscribes the first area of attachment, said circular contact line being disposed in a substantially co-axial orientation with respect to the first area of attachment.

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32. A method of implanting an artificial intervertebral disc comprising:

(a) making an incision in an anulus of a human spinal column between adjacent vertebral bodies of said spinal column to thereby expose a space residing between said adjacent vertebral bodies;

(b) inserting a spacing member through the incision and into position between the adjacent vertebral bodies, and positioning said spacing member at an anterior location with respect to the spinal column such that more intervertebral space resides posteriorly to said spacing member than anteriorly thereto;

(c) applying compression to posterior portions of the adjacent vertebral bodies.

33. The method of claim 32, further comprising:

(d) removing a natural human disc from the space, prior to part (b).

34. The method of claim 32, wherein part (c) further comprises compressing the posterior portions of the adjacent vertebral bodies toward each other to a degree sufficient to move said adjacent vertebral bodies into a sagittal alignment.

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35. The method of claim 34, further comprising:

(e) attaching a holding means to the adjacent vertebral bodies for holding said adjacent vertebral bodies in the sagittal alignment to thereby inhibit said vertebral bodies from moving out of sagittal alignment.

36. The method of claim 32, wherein part (b) further comprises positioning the spacing member sufficiently anteriorly such that said spacing member resides in contact with an anterior longitudinal ligament of the spinal column.

37. A method of implanting an artificial intervertebral disc comprising:

(a) making an incision in an anulus of a human spinal column between adjacent vertebral bodies of said spinal column to thereby expose a space residing between said adjacent vertebral bodies;

(b) inserting a spacing member through the incision and into position between the adjacent vertebral bodies, and positioning said spacing member at an anterior location with respect to the spinal column such that more intervertebral space resides posteriorly to said spacing member than anteriorly thereto;

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(c) placing bone grafting material through the incision and into position between the adjacent vertebral bodies such that said bone grafting material resides between the spacing member and a posterior longitudinal ligament of the spinal column; and

(d) attaching a compression means to posterior portions of the adjacent vertebral bodies to thereby force said posterior portions of the adjacent vertebral bodies toward each other and thereby compress the bone grafting material, said compression means comprising pedicle screws and rod members intercoupling said screws.

38. The method of claim 37, wherein the bone grafting material comprises autogenous bone.

39. A method of implanting an artificial intervertebral disc comprising:

(a) inserting a spacing member into position between adjacent vertebral bodies of a human spinal column, and positioning said spacing member at an anterior location with respect to the spinal column such that more intervertebral

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space resides posteriorly to said spacing member than anteriorly thereto; and

(b) applying compression to posterior portions of the adjacent vertebral bodies.

40. The method of claim 39, further comprising additional parts to be performed prior to part (b), said additional parts comprising:

(i) placing bone grafting material into position between the adjacent vertebral bodies such that said bone grafting material resides between the spacing member and a posterior longitudinal ligament of the spinal column; and

(ii) attaching a compression means to posterior portions of the adjacent vertebral bodies to thereby force said posterior portions of the adjacent vertebral bodies toward each other and thereby compress the bone grafting material, said compression means comprising pedicle screws and rod members intercoupling said screws.

41. A method of implanting an artificial intervertebral disc comprising:

(a) making an incision in an anulus of a human spinal column between adjacent vertebral bodies of said spinal column

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to thereby expose a space residing between said adjacent vertebral bodies;

(b) selecting a spacing member comprising an external concavo-convex contour with respect to one dimension of said spacing member, wherein the spacing member defines an imaginary arcuate centerline residing between opposing sides of the external concavo-convex contour of said spacing member;

(c) inserting the spacing member along an arcuate insertion path through the incision such that the imaginary arcuate centerline follows said arcuate insertion path during the insertion.

42. A method of implanting an artificial intervertebral disc comprising:

(a) making an incision in an anulus of a human spinal column between adjacent vertebral bodies of said spinal column to thereby expose a space residing between said adjacent vertebral bodies;

(b) inserting a trial spacer through the incision and into position between the adjacent vertebral bodies, and evaluating a snugness of fit of said spacer as it resides between said adjacent vertebral bodies and determining a spacer size thereby;

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(c) selecting a spacing member having the spacer size determined in part (b) and inserting said spacing member through the incision and into position between the adjacent vertebral bodies.

43. The method of claim 42, wherein part (b) further comprises dislodging any unwanted soft tissue from between the vertebral bodies with the trial spacer.

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